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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,372	06/23/2003	Yutaka Niwa	2018-736	7060

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EXAMINER

GIMIE, MAHMOUD

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,372

Applicant(s)

NIWA, YUTAKA

Examiner

Mahmoud Gimie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 4 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08122004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3,5,6 and 8-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Shouji et al (6,273,348).

Shouji discloses a fuel injection nozzle comprising: a nozzle body (29, 32) that includes a fuel injection hole (31) and a valve seat, wherein the valve seat is located on an inlet side of the fuel injection hole (31); and a nozzle needle (33) that includes an engaging portion, which is seatable against the valve seat to stop fuel injection through the injection hole, wherein: the nozzle needle (33) has a coating layer in an outer wall of the nozzle needle (33); and the coating layer is made of a lipophobic material (deposit-resistant material), see col. 3 & ll. 11-20 and col. 10 & ll. 20-30

With regard to claim 2, the coating layer extends distally from a predetermined point of the nozzle needle, which is located distally of the engaging portion.

With regard to claim 3, the coating layer covers at least a portion of the engaging portion.

With regard to claim 5, the nozzle body includes a nozzle plate (32), in which the fuel injection hole is formed (31), wherein a generally flat space is defined between the nozzle needle and the nozzle plate.

With regard to claim 6, the coating layer is formed in a distal end surface of the nozzle needle, which is opposed to the nozzle plate.

With regard to claim 8, the fuel injection nozzle is for a direct injection internal combustion engine, which has a combustion chamber and directly injects fuel into the combustion chamber.

With regard to claim 9, the distal end of the fuel injection nozzle is exposed in the combustion chamber.

With regard to claim 10, a manufacturing method of a fuel injection nozzle, which includes a nozzle body (29, 32) and a nozzle needle (33), wherein the nozzle body includes a fuel injection hole (31) and a valve seat, and the nozzle needle includes an engaging portion, which is provided in a distal end of the nozzle needle and is seatable against the valve seat to stop fuel injection through the injection hole, the manufacturing method comprising: soaking the distal end of the nozzle needle (33) in a liquid state lipophobic material to a predetermined depth to apply the lipophobic material to the distal end of the nozzle needle.

With regard to claims 11 and 12, the method further comprising rotating the nozzle needle about an axis of the nozzle needle in a circumferential direction of the nozzle needle when the lipophobic material applied to the distal end of the nozzle needle has liquidity

With regard to claim 13, the method comprising blowing air to the lipophobic material applied to the distal end of the nozzle needle.

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With regard to claim 14, the method comprising cutting at least a portion of the lipophobic material. The manufacturing method according to claim 10, further applied to the distal end of the nozzle needle to adjust at least one of an area of the lipophobic material and a thickness of the lipophobic material, so that the lipophobic material forms a predetermined coating layer in the distal end of the nozzle needle.

Allowable Subject Matter

3. Claims 4 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references show coating fuel injector needles and/or nozzles.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 703-305-1037. The examiner can normally be reached on Tuesday-Friday between 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 703-308-1946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG


MAHMOUD GIMIE
PRIMARY PATENT EXAMINER
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